# Second Generation Product Development at Zylex Corporation

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## Case Objectives

Learning critical issues in:

1. Strategic decisions regarding
   - product life-cycle roadmap
   - commercialization of innovation

2. Execution of projects for development second generation products

# Zylex Environment in 1991 / 1992

- The company, customers and business
  - Successful past its initial startup mode to $175M
  - B-to-B
  - Mfg customers, demand CIP of installed base
  - Long product life & short product life (use fabs for a long time and continuously create latest chips !!)
  - Rapid change in technology (creating tension with the above two)
- Classic strength in 1990
  - Grew the company to $175M
  - Large installed base >> service revenue
  - Customer keep buying it for capacity addition and for mfg process quality
- Classic weakness in 1990?
  - SW archaic, losing engineers,
  - Hurting competitiveness
- Importance of SW to competitiveness?
- Classic, Enable, Symphony

# Opening Questions

- What is the likely first question / comment from the CEO to Mike Hsu?
- Who are the likely participants in the meeting?
  - VP Eng, Marketing, Sales, CFO, VP Mfg,
- Who is sympathetic to Mike's predicament? VP Eng (Mike's boss)?

# What Are Mike's Options in 1995?

| Options | FutureEtch Classic | FutureEtch Enable | Symphony |
|---|---|---|---|

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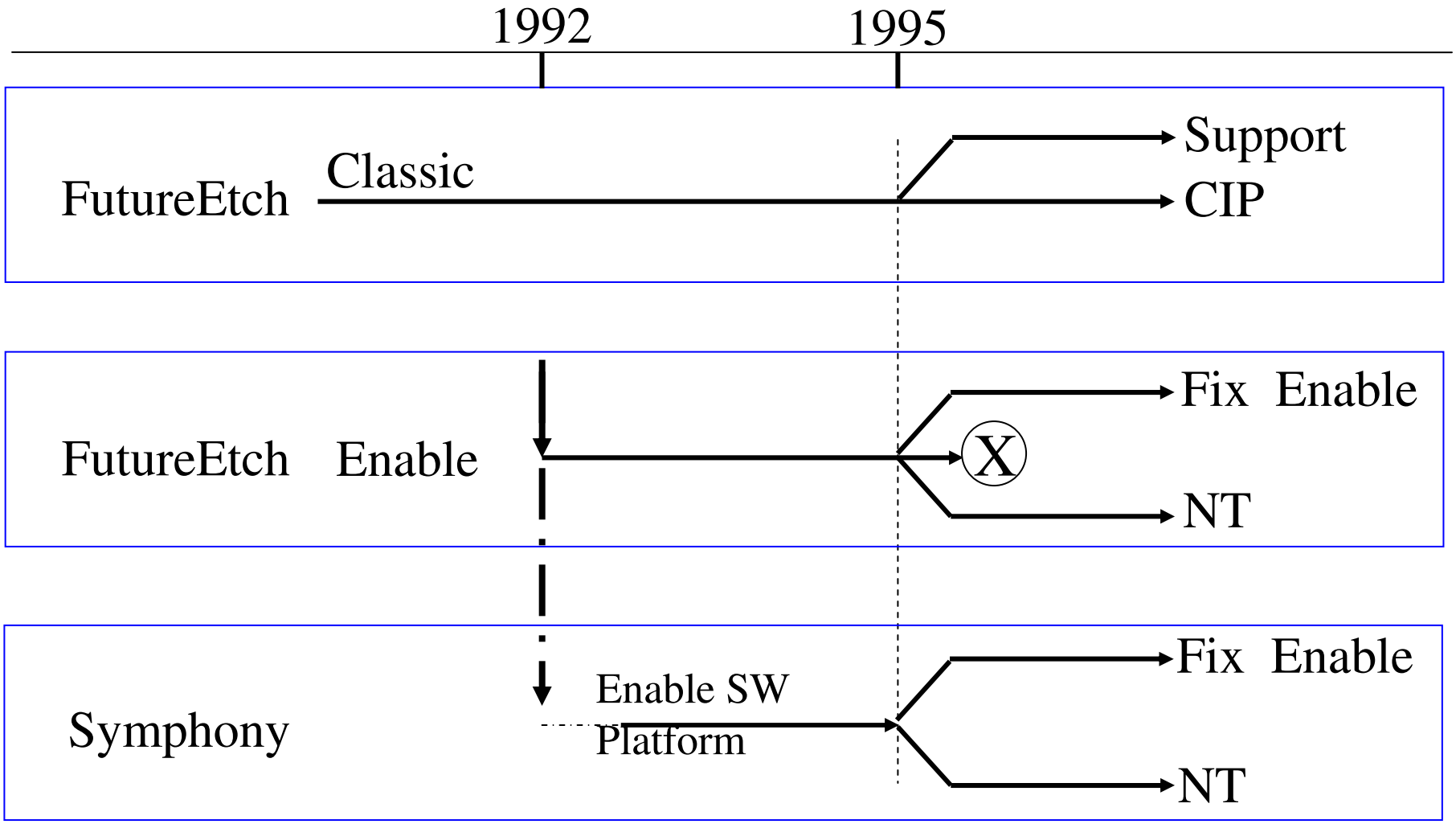
| Options | FutureEtch Classic | FutureEtch Enable | Symphony |
|---|---|---|---|
| 1 | CIP | Discontinue | NT |
| 2 | Support | Fix | Fix Enable |
| 3 | Support | Fix | NT |
| 4 | CIP | NT<br>Stop Selling Enable | NT |

# Product Platform & Life Cycle Roadmap Options



# What Should Mike Recommend to the CEO?

| Options<br>Classic / Enable / Symph | Advantage | Disadvantage |
|---|---|---|
| 1. CIP / Discontinue / NT | | |
| 2. Support / Fix / Fix | | |
| 3. Support / Fix / NT | | |
| 4. CIP / NT / NT<br>Stop Selling Enable | | |

## How Did Classic Rank vs. Enable In Satisfying User Needs?

| User Needs | Classic | Enable |
|---|---|---|
| | | |
| | | |
| | | |
| | | |
| | | |
| | | |

Neutral 0 Positive + Negative -

## How Did Classic Rank vs. Enable In Satisfying User Needs?

| User Needs | Importance? | Classic | Enable |
|---|---|---|---|
| Etch Technology | Must have | 0 | 0 |
| Reliability | Must have | + | --- |
| Support | Linear | 0 | - |
| Price | Linear | 0 | - |
| User Friendliness (GUI) | Delighter | - | +++ |
| Extendibility (CIP Capability) | Linear | -- | ++ |

Neutral 0 Positive + Negative -

# How Was Enable Positioned In The Market & What Was Its Impact On Customers ?

Positioning / Customer Perception

Customer Impact

# How Was Enable Positioned In The Market & What Was Its Impact On Customers ?

Positioning / Customer Perception

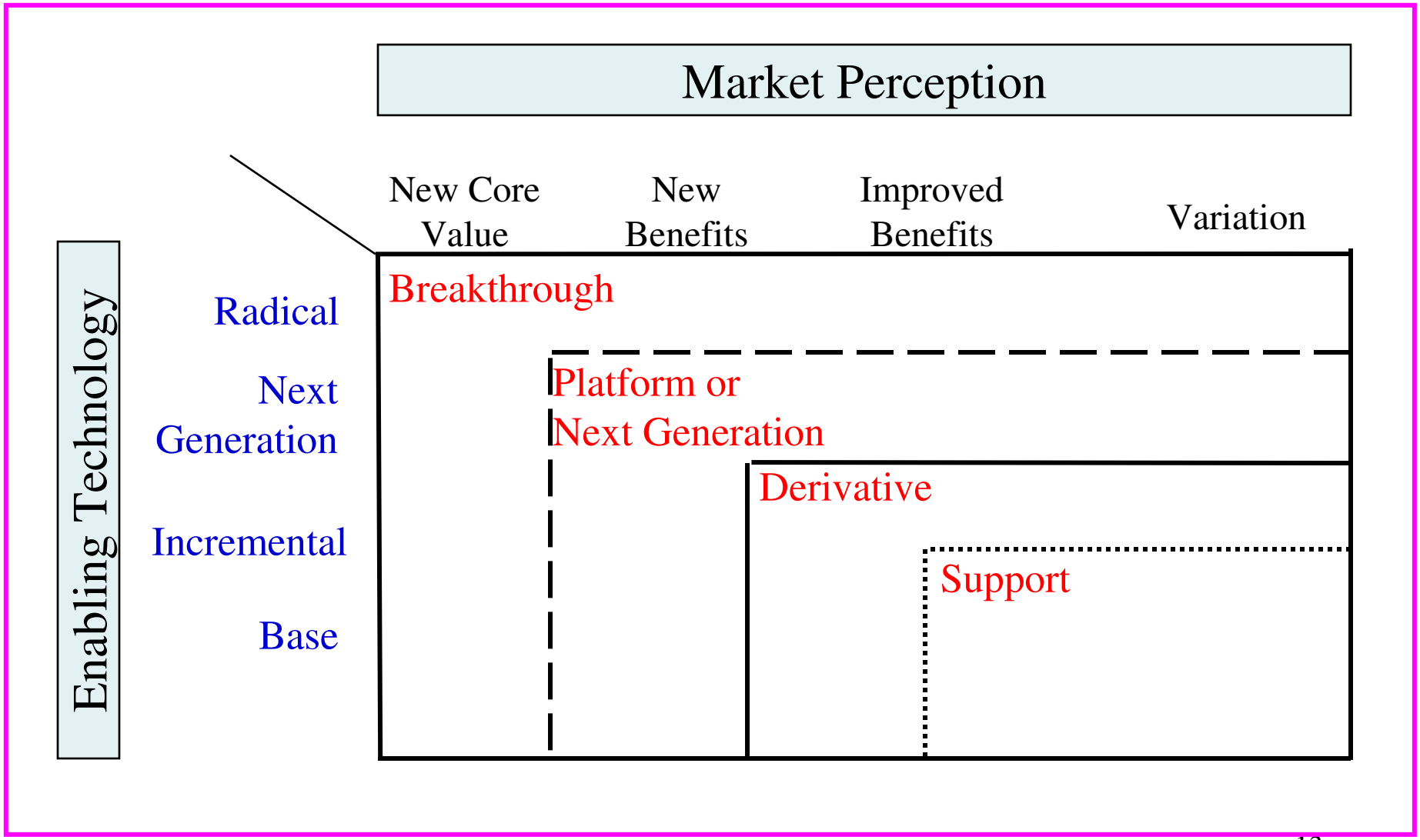
- State-of-art SW / GUI
- New product
- Discontinuous innovation
- Much improved
- Can add new capabilities

Customer Impact

- Higher price
- Better GUI
- Less capability than Classic
- Poor reliability
- Support two products
- Confusion: differentiation between Classic & Enable

# Product / Project Type

Ref: Clark / Wheelwright Framework



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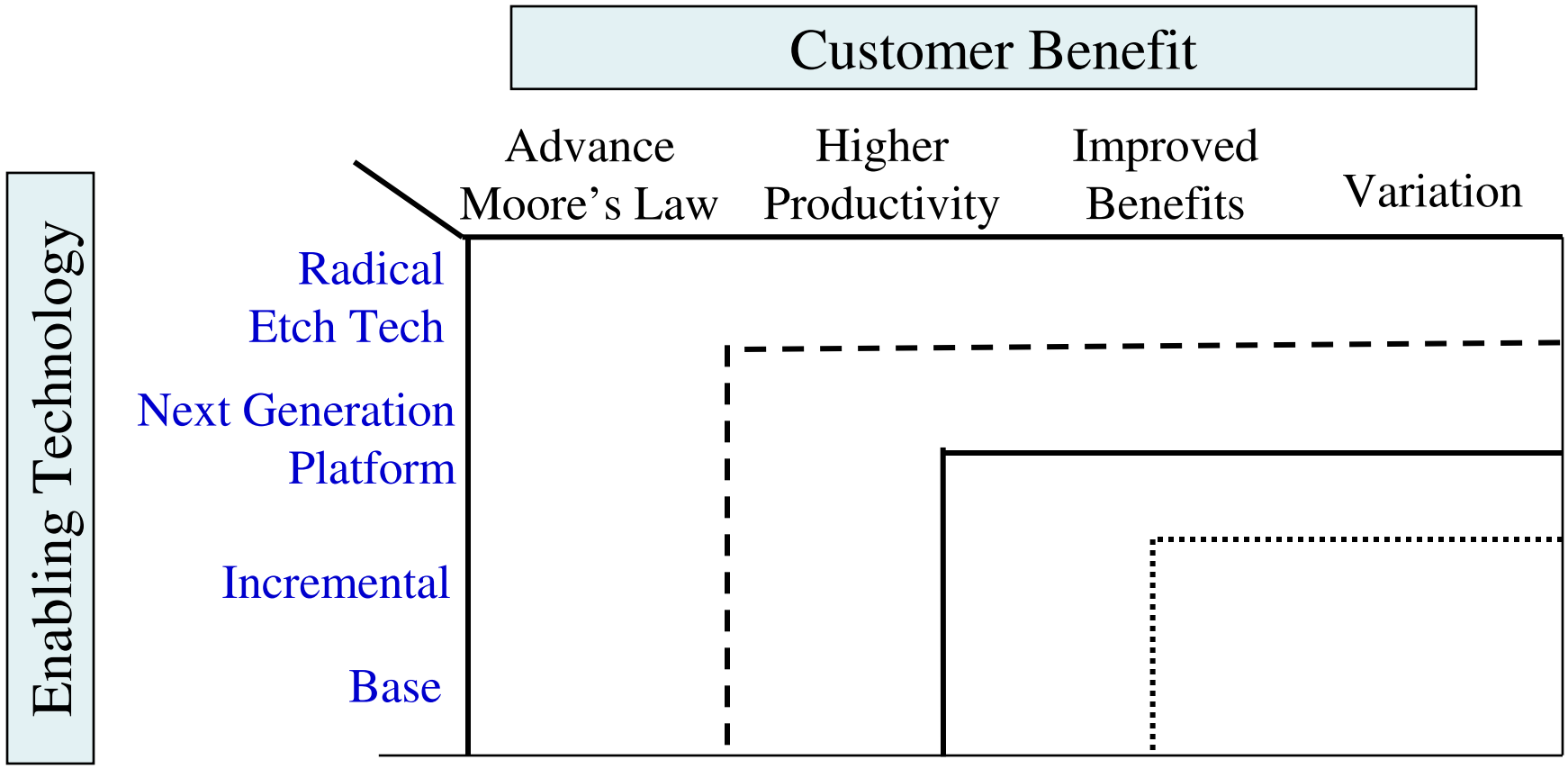

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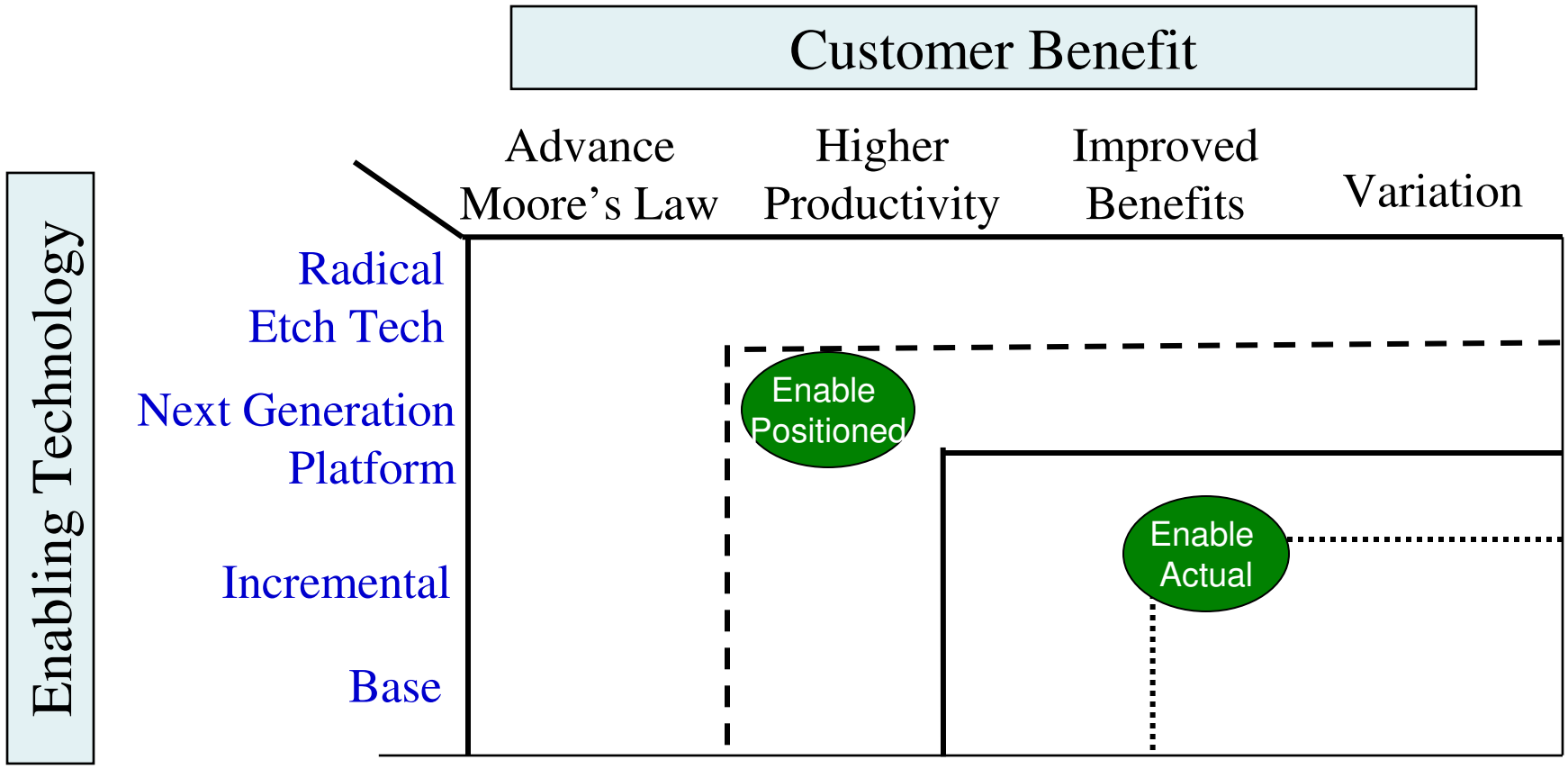
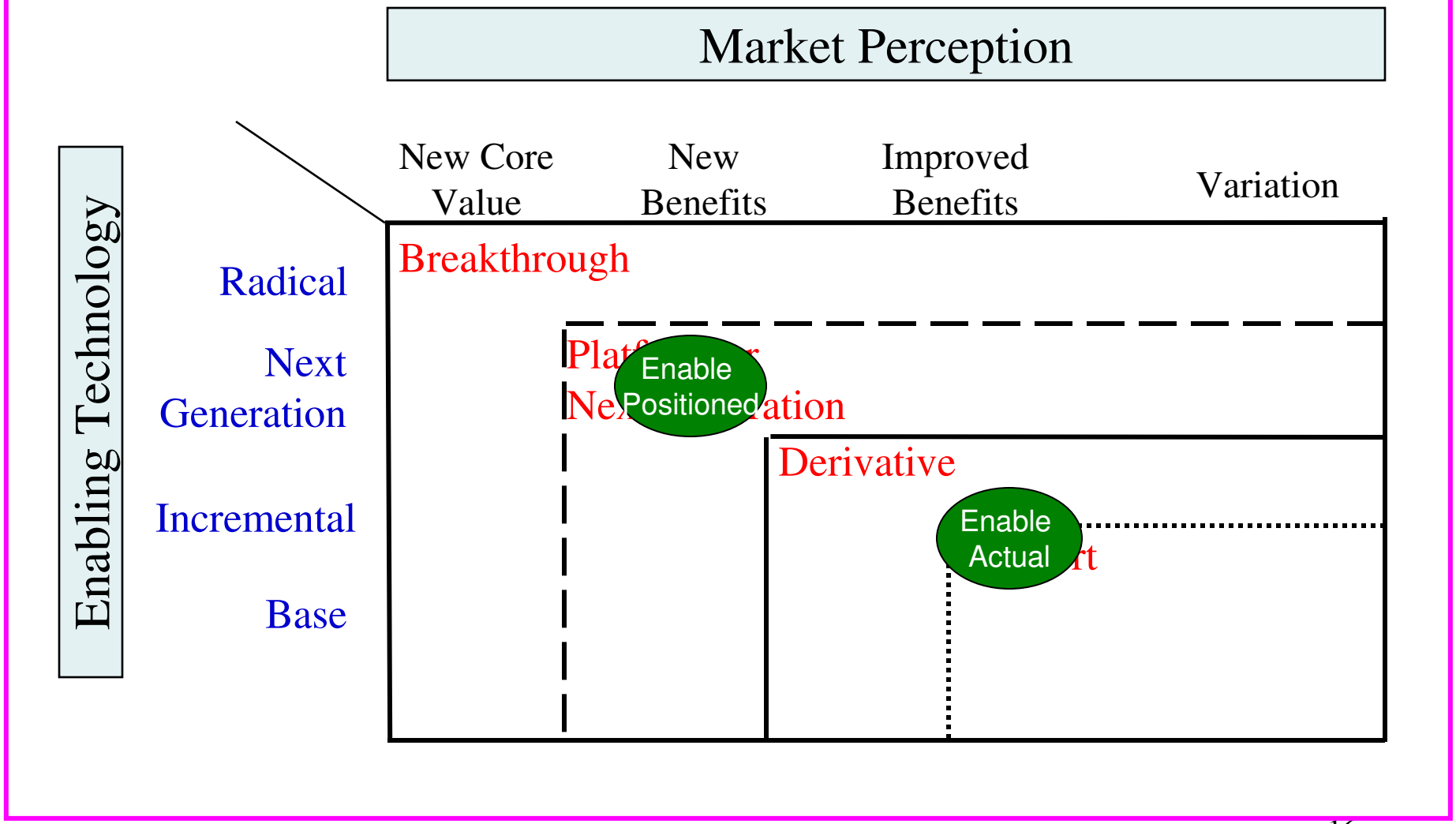


# Product / Project Type



# Execution of
# Enable Product Development & Commercialization

| Strengths | Weaknesses |
| --- | --- |
| | |

# Execution of
# Enable Product Development & Commercialization

Strengths

- Met planned schedule
- Great looking GUI

Weaknesses

- Did not catch reliability before product release
- Supplier selection process
- Supplier contract
- SW OS technology selection
- Engineering-driven platform selection
- Did not understand the high-switching cost of embedded technology and critical suppliers

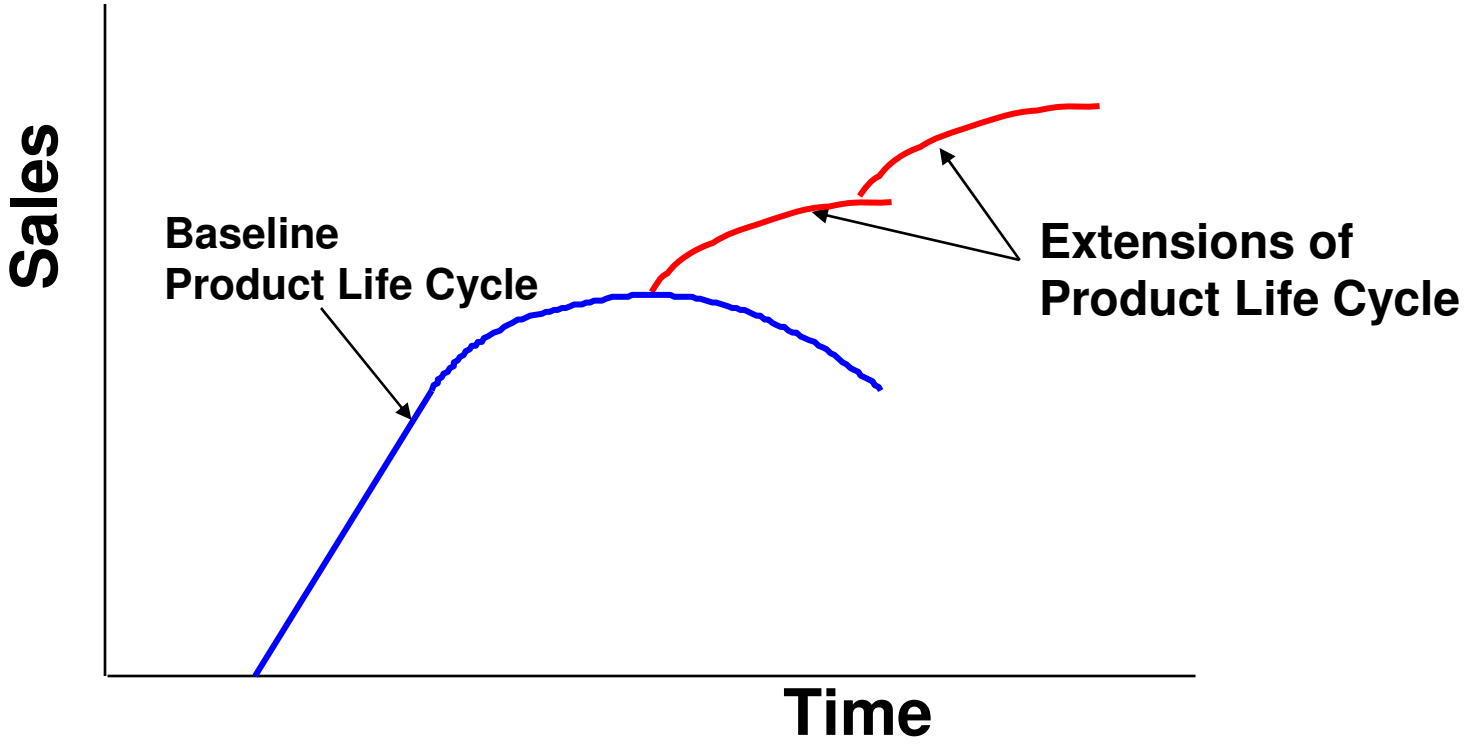
# What Was The Impact Of Enable Strategy On The Company Resources & Operation?

## What Was The Impact Of Enable Project On The Company Resources & Operation?

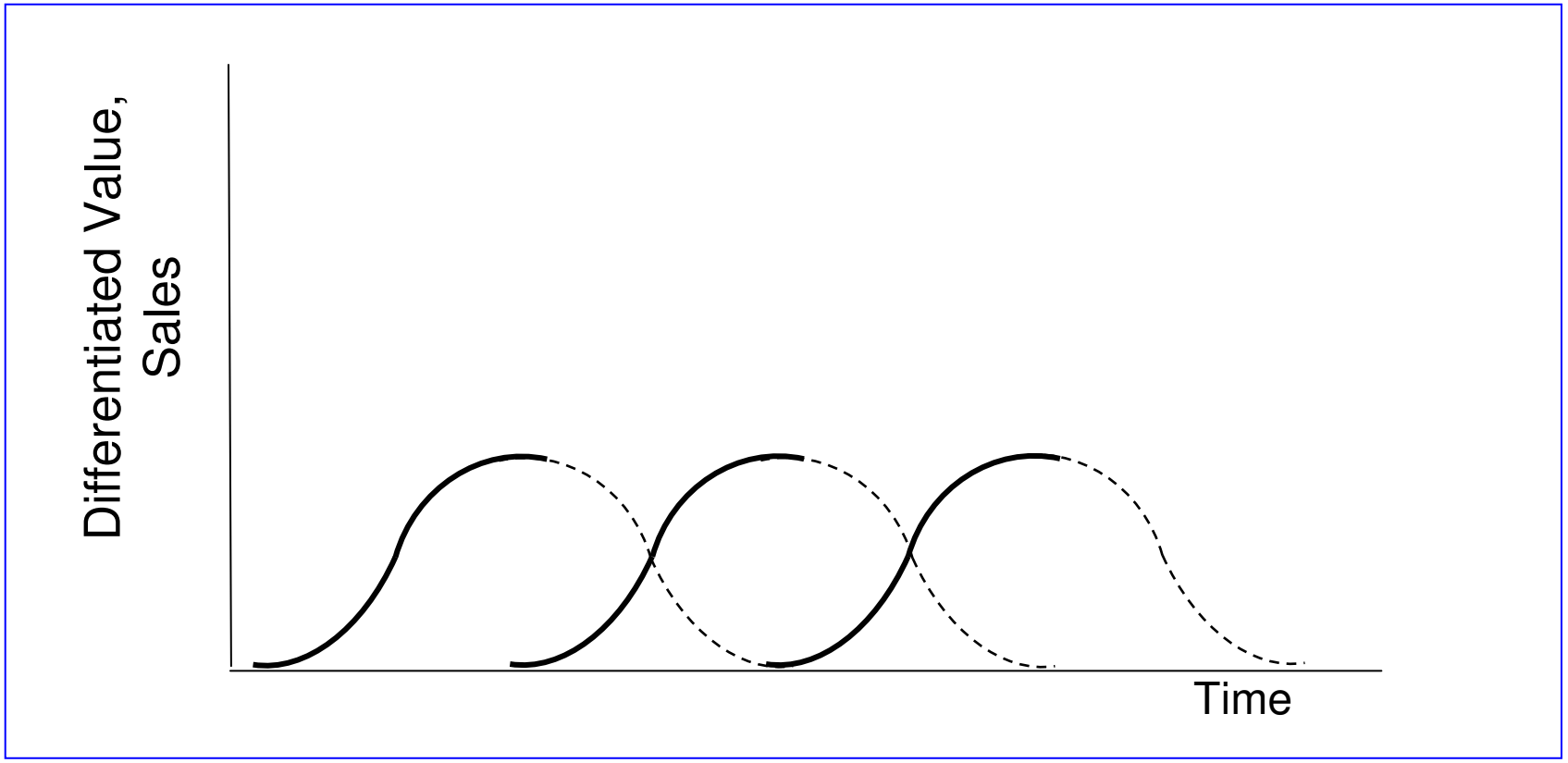
- Duplicating engineering to support Classic & Enable
- Service: training and supporting two product lines
- Mfg production planning
- Marketing: collateral, positioning confusion
- Sales: forecasting, training, selling confusion

# Continuous (Incremental) Innovation

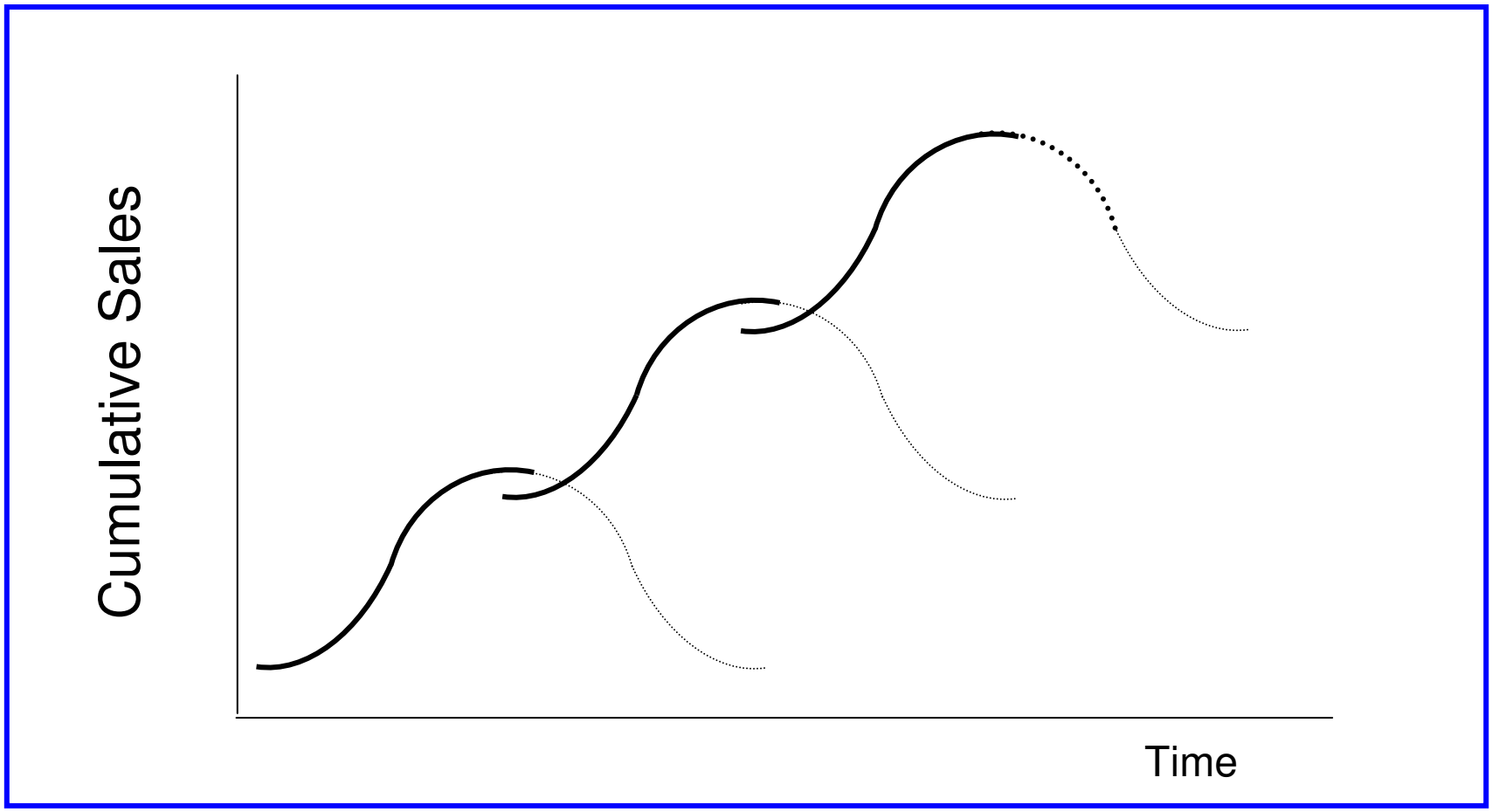
*Continuous Improvement Projects* (CIP)



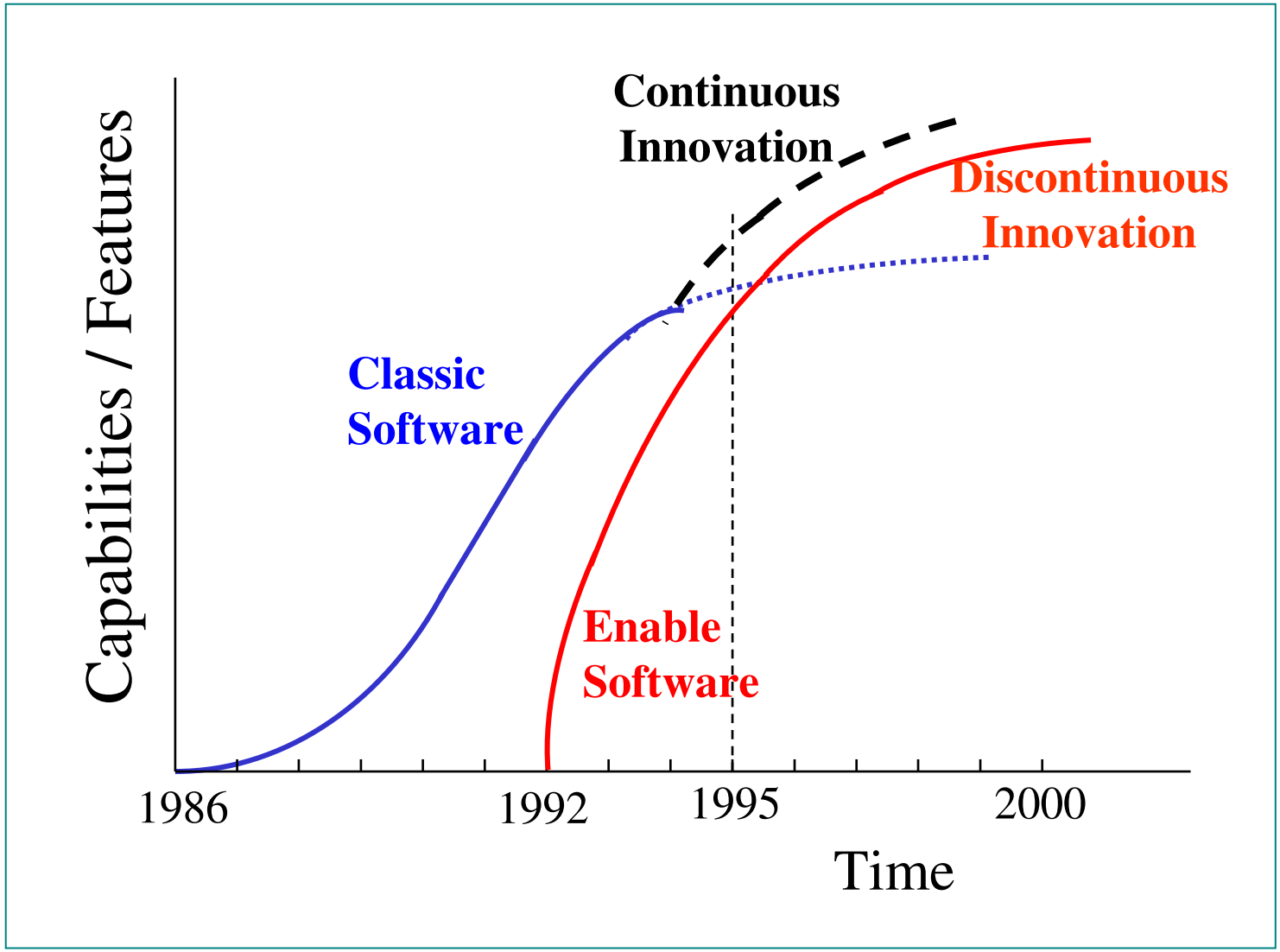
# Discontinuous Innovation
# The S-Curve Model



# Sustained Growth
# Through Successive Discontinuous Innovations



# FutureEtch Software
# Continuous vs. Discontinuous Innovation



# What Actually Happened ?

- Zylex continued to “fix” the SW reliability problems over the next two years until both Enable and Symphony became stable
  - NExT improved cooperation in fixing the problems and in developing / improving new hardware drivers

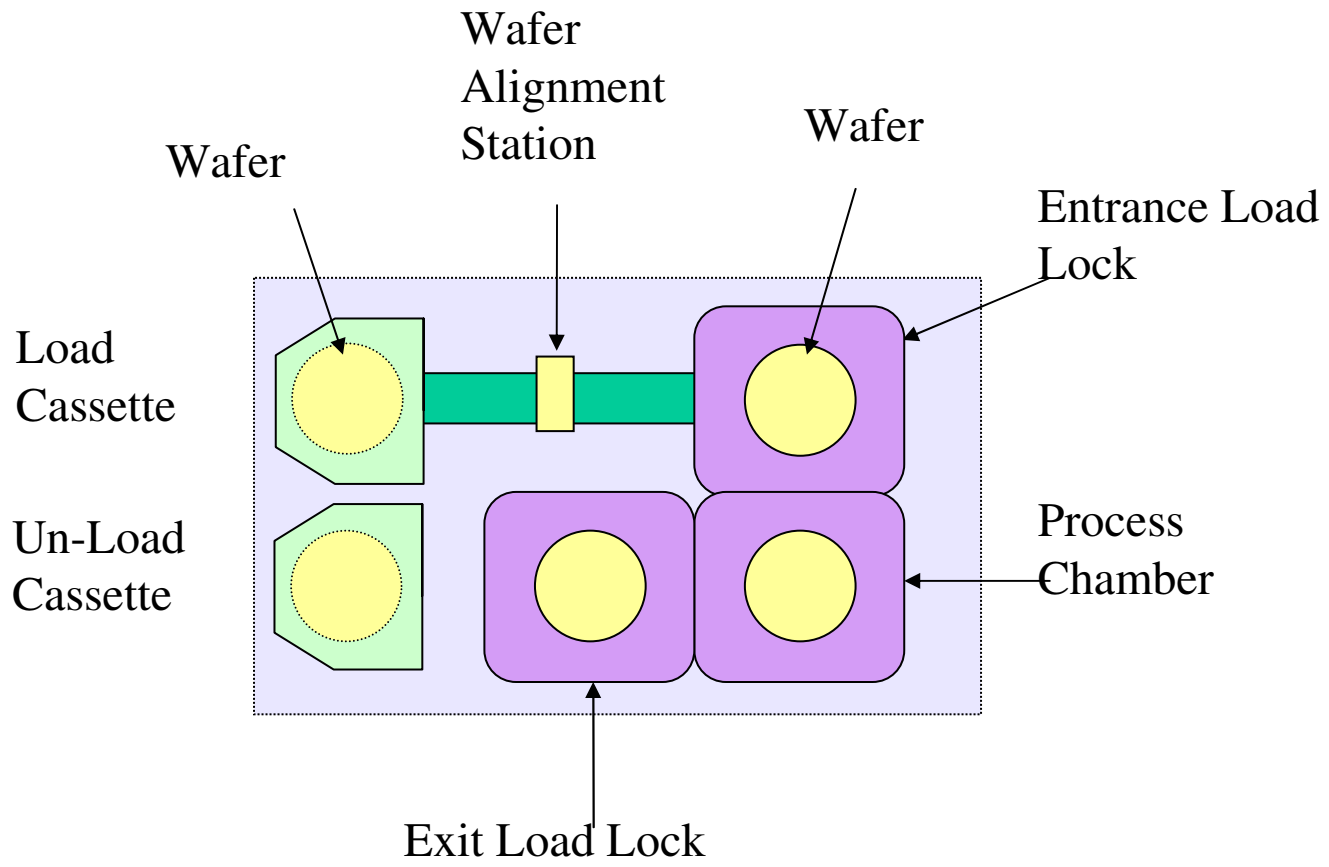
- Mike Hsu left the company in late 1995

- In 1998, the company developed a new 300mm-wafer cluster platform based on a totally new SW platform and NT OS

# Summary
# Second Generation Product Development

- Continuous / Discontinuous Innovation decision must be aligned with:
  - Market perception
  - Enabling technology type
  - Product line / platform life-cycle roadmap for the current & next generation products
- Commercialization timing of continuous-innovation must be weighed against quality-at-release.
- Platform decisions have long-term impact across multiple product lines on resources and operations
- Critical technology / supplier selection is a high-impact / high-risk decision due to high switching cost

# FutureEtch System Layout



# Symphony System Layout